REMARKS

Claims 1-24 are pending. Claims 1-2 and 4-23 are rejected. Claim 3 is allowed. Claims 1-24 remain in the case for reconsideration. Reconsideration is requested. No new subject matter has been added.

Allowable Subject Matter

Applicant respectfully acknowledges the allowance of claim 3.

Claim Rejections – 35 U.S.C. § 112

Claims 1, 2, 4-6, 8, 9, and 24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims have been amended as suggested by the Examiner and are therefore allowable under 35 U.S.C. 112.

Claims 4, 8, 9, and 24 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards the invention. The claims have been amended to overcome the rejection under 35 U.S.C. § 112.

Claim Rejections – 35 U.S.C. § 102

Claims 7, 16-18, 20, 21, and 23 are rejected under 35 U.S.C. § 102(e) as being anticipated by Suzuki (US 6,256,343).

Claim 7 has been amended so clearly distinguish over Suzuki (US 6,256,343). Suzuki does not teach deriving local motion vectors from only the global motion parameters in the encoded macroblock bit stream for individual macroblocks using bilinear interpolation. See Suzuki column 10, lines 33-67, column 11, lines 1-25, and column 9, lines 19-49.

The INTER local motion estimation device 30-3 performs local motion estimation using the amplitude of the Y signal in the global motion compensated picture (see column 10, lines 58-59) and the amplitude of the Y signal in the original picture of a frame to be coded (see column 10, lines 54-57). The local motion vector is detected and then output to the GMC on/off switch 31-2 (see column 11, lines 22-24). The local motion compensated picture is output to the GMC on/off switch 31-1 (see column 11, lines 24-25). This information is also sent to the control device (see column 9, lines 19-49).

Depending on the evaluation value, either the local motion processing part output is selected for coding or the global motion compensation processing part output is selected for coding. Suzuki does not teach coding the global motion parameters (parameters of the global

motion vectors) and then deriving the local motion vectors for individual macroblocks from only the global motion vectors using bilinear interpolation (specification describes use of bilinear interpolation on page 4, line 17 & page 5, line 6). In addition, claim 16 has been amended to specify identifying macroblocks in the image frame in which local motion vectors associated with the identified macroblocks should be derived from the global motion estimation parameters in the encoded macroblock bit stream using bilinear interpolation and not encoding local motion vectors associated with the identified macroblocks.

Suzuki does not teach excluding from encoding local motion vectors on the basis that they can be derived for identified macroblocks from only the global motion parameters encoded in the macroblock bit stream.

Claim Rejections – 35 U.S.C. § 103

Claims 1, 2, 5, 6, 8, 9, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki as applied to claims 7, 16-18, 20, 21, and 23 in the above paragraph (5), and further in view of Shimizu et al. of record (US 2003/0174776 A1).

Claim 1 has been amended so that it is patentable over Suzuki and in further view of Shimizu. Neither Suzuki nor Shimizu teach deriving the local motion vectors from the global motion vectors using bilinear interpolation. In Suzuki the local motion vectors are detected not through bilinear interpolation, but by summing the difference between the amplitudes of the Y signal in the search range of the original picture of a frame to be coded and the amplitudes of the Y signal in the search range of the global motion compensated picture. See Eq. 10 of Suzuki in column 10.

Shimizu teaches calculating the local motion vector by averaging the motion vectors that was determined by each pixel based on the global motion vector (see [0095]). Neither Suzuki nor Shimizu teach using bilinear interpolation, such as the method described in eq. (1) on page 5 (see page 4, line 17 & page 5, line 6 for mention of bilinear interpolation method).

Claims 10, 11, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki. Claims 4, 12-14, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki ('343) and Shimizu et al. as applied to claims 1, 2, 5-11, 15-18, 20, 21, and 23 in the above paragraphs (5), (7), and (8), and further in view of Suzuki et al, of record (US 6,205,178). Claim 22 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Suzuki '343 as applied to claims 7, 16-18, 20, 21, and 23 in the above paragraph (5), and further in view of Eleftheriadis et al. of record (US 6,055,330).

These claims have been amended to include some or all of the limitations described above and therefore are allowable for similar reasons.

Claims 4, 7, and 10 include the limitation of deriving local motion vectors from the global motion parameters for individual macroblocks in the current image frame independently of the local motion vectors or global motion vectors for other macroblocks in the current image frame.

This is clearly shown in FIGS. 6 and 7 where the global motion vector 80 derived for macroblock 74 is derived independently of the type of local motion vectors used for other macroblocks in the same image frame 72.

Conversely, Shimizu derives motion vectors for blocks according to the motion vector of an already encoded small block. For example, Shimizu as page 4, paragraph, 50 states: ". . . if the motion compensating method of the target small block differs from the motion-compensating method of the already-encoded small block, then a predicted vector is calculated by converting the format of the motion vector of the already encoded small block for the prediction into a format of the motion vector used in the motion compensating method of the target small block."

Similarly, Shimizu at paragraph 51 states: ". . .if, the motion compensating method used for the target small block is the local motion-compensating method and the motion compensating method used for the already encoded small block for the prediction is the global motion compensating method, then a local motion vector of the already encoded small block is calculated based on the global motion vector . . . "

Thus, Shimizu derives global or local motion vectors according to the type of local or global motion compensation for already encoded blocks.

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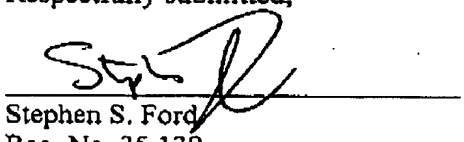
CONCLUSION

For the foregoing reasons, reconsideration and allowance of claims 1-24 of the application as amended is solicited. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,



Stephen S. Ford
Reg. No. 35,139

MARGER JOHNSON & McCOLLOM, P.C.
1030 SW Morrison Street
Portland, OR 97205
(503) 222-3613